

External Peer Review Comments:  
“Setting health Protection Goals at the Centers for Disease Control and Prevention:  
Outcome Measures by Life-stage”

**1. Are the objectives clearly stated and appropriate? (Yes, No, Unsure) Why?**

The introduction clearly presents the overarching goals of the CDC’s Future Initiative, as well as the specific aim of this paper.

**2. Is the overall framework (for choosing the health outcome measures) appropriate for the stated objectives? (Yes, No, Unsure) Why?**

The choice of measures is fine, but it is not clear how the data sets were chosen. There are often more than one nationally-representative dataset that could be used to measure the health outcomes. Was it necessary to only use one source for each measure?

**3. Are the methods used to evaluate trends and set targets for the health outcome measures appropriate for the stated objectives? (Yes, No, Unsure) Why?**

Although the Holt-Winters forecasting method is clearly explained and adroitly applied, it is not clear why it is used at all. For several of the health outcomes, the 2020 target is in the opposite direction of the current trend (e.g., adult mortality, healthy weight for older adults). For others, continuing on the current trend would exceed the target without any further intervention (e.g., mortality ages 4-11 and 12-19). With the targets so divorced from the forecasts, what is the point of having forecasts?

**4. Are the findings from examining historical trends and forecasting of targets presented and interpreted appropriately and completely? (Yes, No, Unsure) Why?**

There are some large blips in some trends (e.g. Figure 1 lower right graph, and three of the graphs in Figure 2). Are these blips real? If not, was there a change in the way the questions were asked or the data were collected? What are the implications for trying to collect accurate information on health measures in the future if the measures change in a way that is unrelated to actual health outcomes?

**5. Are the conclusions and recommendations appropriate and complete (Yes, No, Unsure) Why?**

The discussion is fine. The only thing I would ask the CDC to consider is whether it would make sense for the CDC to sponsor a survey that collects the exact information it needs to measure these health outcomes, instead of relying on other data sets designed primarily for other purposes.

**6. Are there any other comments on the report?**

The text should summarize the important information about what health outcome measures are used (see bottom of p. 4). Instead of listing the half-dozen or so measures, which would be easy and informative, the reader is forced to go find Tables A1 and A2.

Although the YHL are age adjusted, it is not clear if the other measures are (e.g. tobacco-free). However, having age-adjusted measures is critical, especially for the 50+ age group. Over time the age distribution will change, and the health measures should reflect changes in real health, not in demographics.

Add a table after Table A1 that contains all the information that is currently in the notes for Table A1. The new table would have rows indicating the measures of health outcomes, and columns for the data set name, definition of measure, and other relevant information.

Table A2 has too many unexplained acronyms (e.g., RSE, AIAN, API).

Replace Table A4 with a graph. Tables with many numbers are hard to read, especially when the time intervals reported are uneven.

A few comments:

- 1 Objectives are clear,
  - 2 framework quite reasonable,
  3. methods fine- minor issue here. There probably should be some statement in conclusion or even in results that the deterioration in some of the adult measures eg mortality probably reflects the aging of the pop within the category and is part of the decision to use crude rates rather than age adjusted within the categories.
  4. Forecasting seems fine- minor pt-healthy weight for children did not have the 2020 goal in the figure( only as part of the title- why not? Visually it was helpful in the figures of the other ages
- Conclusions seem fine

Comments/Discussion seems sparse: implications are very large of using this approach. EG. use of broad indicators like this SHOULD drive program action toward those factors, diseases, conditions that affect the largest numbers or the largest improvements for the individuals affected. Conditions or actions affecting a few will not move these measures very well.

These are often trackable at the state level- could drive their policies and directions if CDC reports those.

Nice paper, good big picture measures. Disparities paper will be impt as well.

## **Review of *Setting Health Protection Goals at the Centers for Disease Control and Prevention: Outcome Measures by Life-Stage***

1. Are the objectives clearly stated and appropriate? **Yes**
2. Is the overall framework appropriate for the stated objectives? **Yes**
3. Are the methods used to evaluate the trends and set targets for the health outcome measures appropriate for the stated objectives? **Yes**

### **Evaluating trends**

The Holt Winter's method is generally appropriate, but I have concerns about evaluating the trend by a *linear* projection for a ten year period (almost equal in length to some of the historic data) for many series that must eventually be non-linear, asymptotically approaching either

- (1) a small number slightly greater than zero (e.g. Crude Death Rates for Children Ages 4- 11)
- or
- (2) a number slightly less than 100% (e.g. Proportion of the Population reporting "verygood/excellent" health).

### **Setting targets**

The methodology for developing targets from the historic trends or current baseline is not described in detail.

The authors appropriately adjust (by decreasing) linear trend projections when developing targets for Crude Death Rates. However, in all cases for Proportion of the Population reporting "verygood/excellent" health, targets are higher than linear trend values. These linear trend values themselves are likely optimistic in view of the inherently non-linear nature of these series and the fact that historic series, when increasing, seem to do so at decreasing rates.

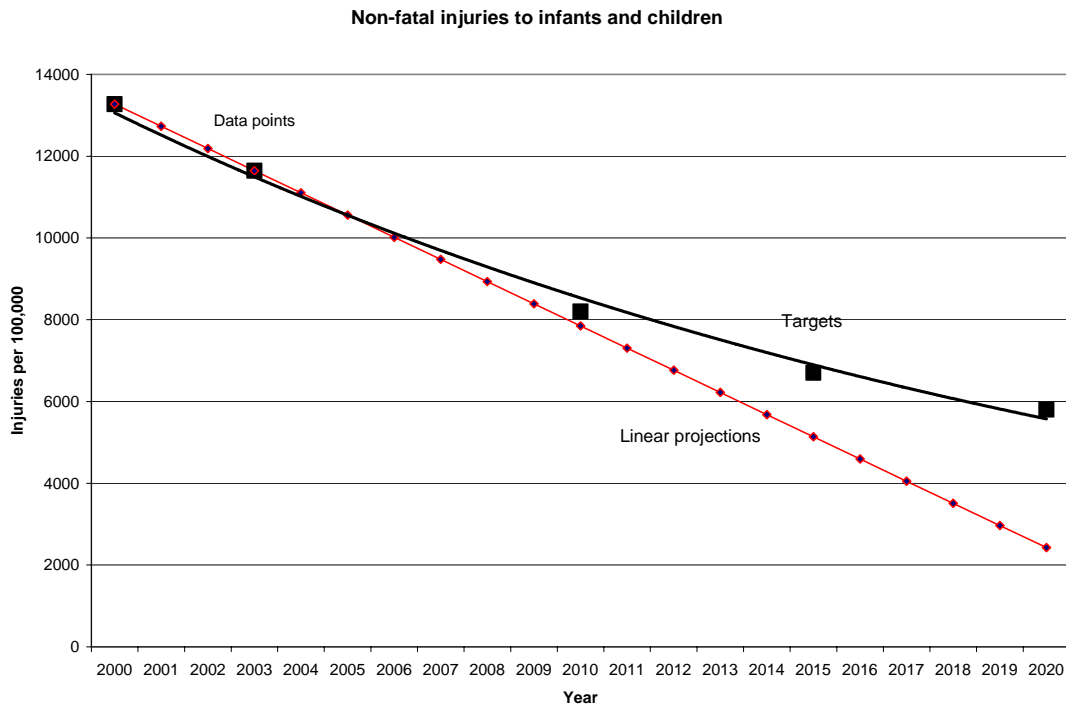
Moreover, there is an obvious relationship between these two measures (Crude Death Rates and Proportion of the Population reporting "verygood/excellent" health), exemplified by the anomaly during the approximate period 1996 – 2000 for adults 20-49 years in both measures. Perhaps this relationship between the two measures should be considered, if not entirely preserved, in the targets.

The authors state that. "...targets for all measures are more ambitious than anticipated." This is accurate in my judgment.

4. Are the findings from historical trends and forecasting of targets presented and interpreted appropriately and completely?

**It would be helpful to see targets for the years 2010 and 2015 on the figures as well as those for 2020.**

**Forecasting of targets for non-fatal injuries for infants and toddlers is not detailed, but target values are appropriate and ambitious though still less ambitious than other targets.**



5. Are the conclusions and recommendations appropriate and complete? **Yes**
6. Are there any other comments on the report?

**The non-linear nature of trend for most of these measures might best be captured by using a log-linear, exponential, Holt-Winters model. This would more accurately reflect just how ambitious some of these targets are.**

**Alternatively, some sort of prediction interval, rather than a single projected trend value, might clarify the relationship between the target and the historic trend.**

**Finally, I generally agree with the use of univariate time series for evaluating trend and setting targets. However, consider the situation for adults 20-49y where crude death rates have been rising and respondent-assessed health has been declining with the salient exception of several years between 1996 and 2000, approximately. If reasons are known for these changes in trend direction, they would be useful in developing targets.**